

Abstract of the Disclosure

The object to the present invention is to provide a magnetron which can reduce spurious oscillation such as the  $\pi - 1$  mode which presents a problem particularly in magnetrons and can reduce spurious radiations without placing filters. The magnetron of the present invention includes an anode 1 formed by plural vanes 12 in such a manner that inner ends 12 are radially extended toward the center of the anode shell 11 from the inner wall of a cylindrical anode shell, and a cathode 2 provided at the center of the anode 1. The magnetron of the present invention further includes a pair of pole pieces 4 provided in such a manner that a magnetic field can be applied on the interaction space 2 where the inner ends 12a of the vanes 12 and the cathode 2 face with each other. At least one of the pair of pole pieces is provided in such a manner that in a range A at least  $1/3$  of the vane length L from the inner end 12a of the vane, the distance B between the side surfaces 12b of the vanes and the surface 4b adjacent the inner end 4a of the pole pieces 4 is within  $0.015 \lambda$  wherein  $\lambda$  is the oscillation wavelength of the magnetron, and said vane length is a distance from said one end to said inner end.